

**ABSTRACT OF THE DISCLOSURE**

A current-to-voltage converting apparatus connected to an  
5 element or a circuit having a first terminal connected to a signal source  
and comprising a feedback amplifier, which is connected to a second  
terminal of the element or the circuit and keeps the second terminal at  
virtual ground, and which converts the current signals that flow to the  
element or the circuit to voltage signals and outputs these signals; a  
10 device for opening the feedback loop of the feedback amplifier and  
measuring the open-loop loss of the feedback loop; and a compensating  
amplifier, which compensates for the open-loop loss. It further comprises  
a device for measuring the open-loop phase shift of the feedback loop  
when the feedback loop is open and a control unit for keeping the open-  
15 loop phase shift at a pre-determined value.